

ÖBLON, SPIVAK, ET AL DOCKET #: 202686US2TTC INV: Katsumi KANEHIRA, et al. SHEET 1 OF 18



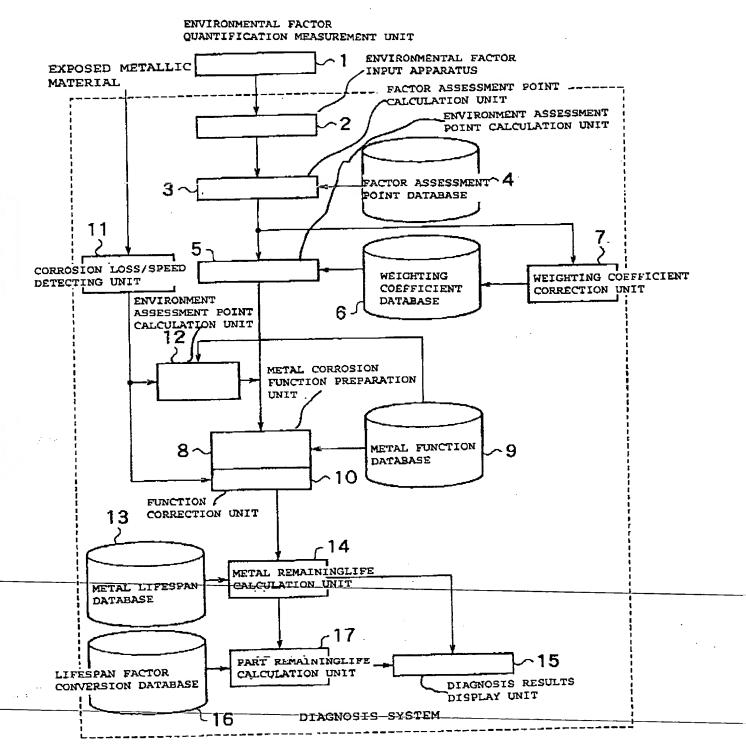


FIG. 1

Athony	A tracentration or anytoment	ant.			-				18		>	
Aunospiici				,	;					~~		
Fruironme	Funironmental factors		Measured	Measured Evaluation	Measured	Evaluation	Measured	Evaluation	Measured	Evaluation	Measured Evaluation	Evaluation
		/	value	point	value					point	value	point
Temperature (°C)	re (°C)	4	\$20		≥25	2	≥30	4	≤35	8	>35	12
Relative humidity	umidity	В	09₹	_	59≅	9	≤ 70	12	08⋷	24	>80	36
(%RH)	•											
Corrosive	SO, SO,	ರ	≥0.02		≥ 0.05	4	≤0.2	8	≤0.5	16	>0.5	24
nas	1	ಬ		-	≥0.05	9	≤0.2	12	≥ 0.5	24	>0.5	36
(mdd)	ζ. C	S			≥0.05	3	≤0.2	9	≥ 0.5	12	>0.5	18
			≤ 0.02		≥0.05	7	≤0.2	14	≥0.5	28	>0.5	42
	HZ HZ	S	≤0.02		≥0.1	3	≤1.0	9	≤10	12	>10	18
Sea salt	Sea salt				≤ 0.03	5	≤0.1	10	≤0.3	20	>0.3	30
particle	particle											
	Distance	Ω	>2.0	· ·	≥1.5		≥1.0		≥ 0.5		<0.5	
	from											
	coast											
	(km)											

FIG.

7

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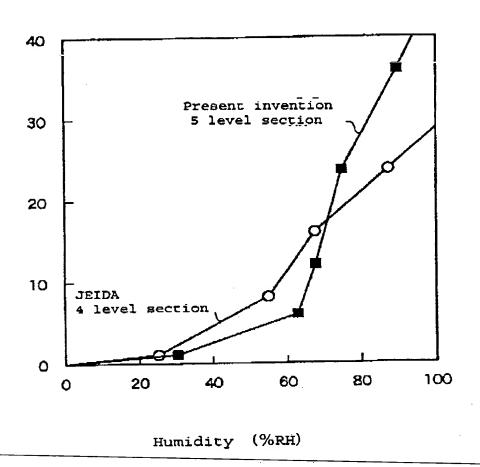


FIG. 3

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JEIDA-29-1990 Dividing into four stage classes

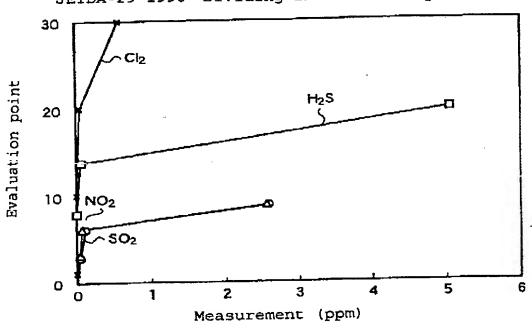


FIG. 4 A

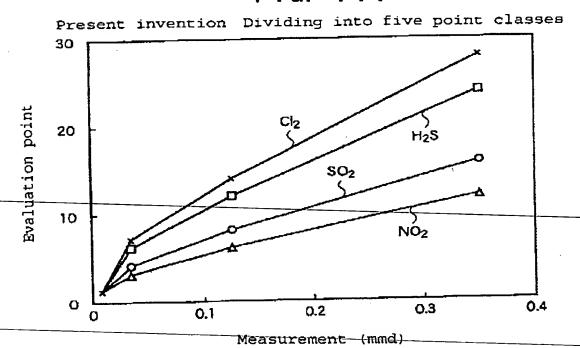
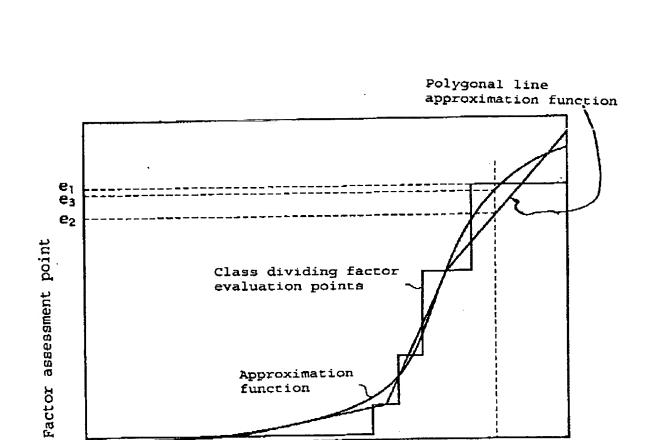


FIG. 4B

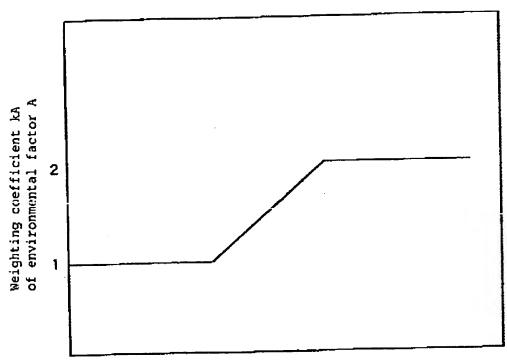
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Environmental factor quantity B

FIG. 5





Quantity X of environmental factor B

FIG. 6

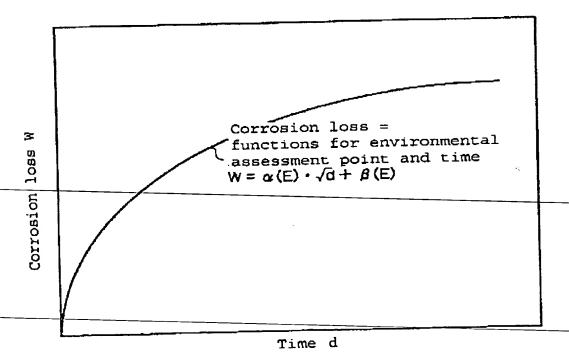


FIG. 7

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Maximum function value of corrosion loss of metallic material prediction function represented by function for environmental assessment points and time

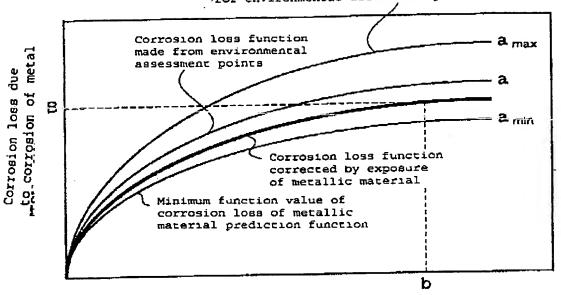


FIG. 8

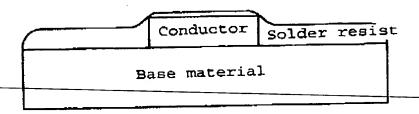


FIG. 9

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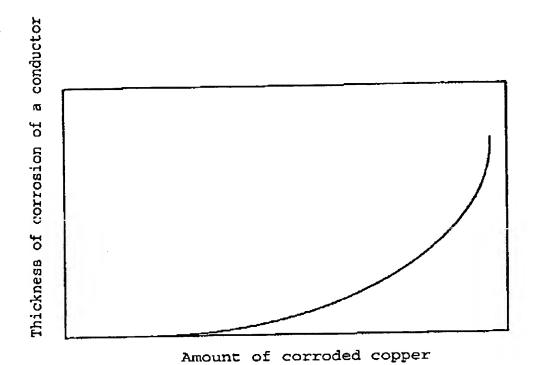


FIG. 10A

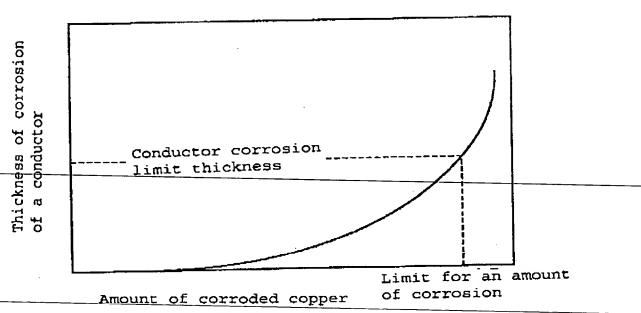
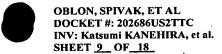
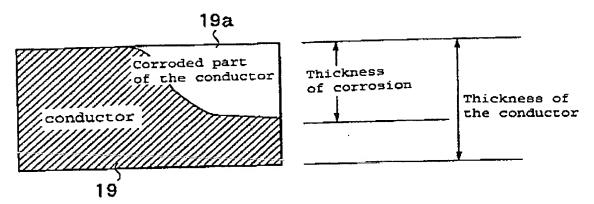


FIG. 10B







Corrosion loss rate = (thickness of corrosion/thickness of the conductor) ×100

FIG. 11

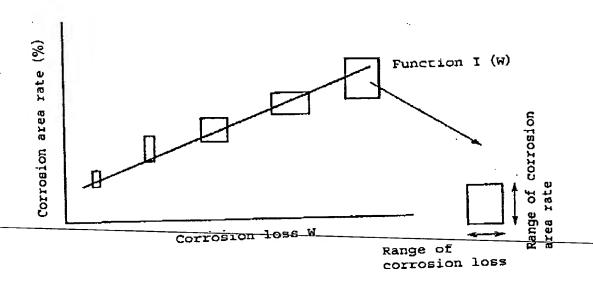


FIG. 12

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		- ;	Ç
None	SiN	;	ļ

:

13(W)

:

12(34)

Manufacturer Sealing resin Chip protective film Other... Correlation function I(W)

T Inc. Epoxy PSG 1,(W)

1C type Year 1C1 1982

Epoxy
blend - - Epoxy
blend - - Polyimide
blend - - -

Z Jic.

1979

102

H Inc.

1992

133

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									_	
	Sealing Chip protective Other Change of time sequence of aluminium withing corrosion	Correlation function F(u) of aluminium wiring corrosion	area rate and faults	$U_1 = m_1(t), F_1 = n_1(u)$		$U_2 = m_2(t), F_2 = n_2(u)$		$U_3 = m_3(1), F_3 = n_3(u)$		==
	Other									:
	Chip protective			PSG		None		SiN		:
		resin		Epoxy	blend	Ероху	blend	Polyimide	blend	:
_	Year Manufacturer			T Inc.		N Inc.		H Inc.		
	Mamu									
	Year			1982		1979		1992		

FIG. 14



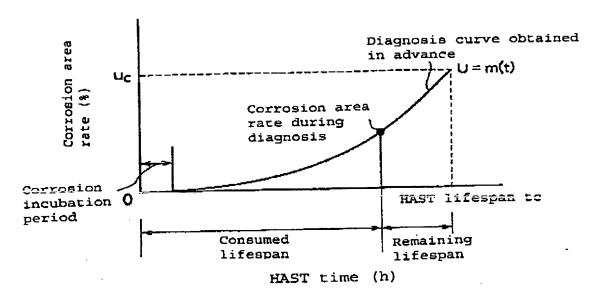
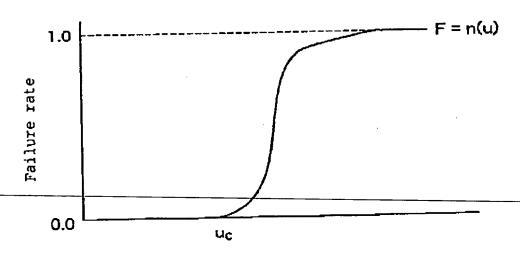


FIG. 15



Corrosion area average rate (%)

FIG. 16

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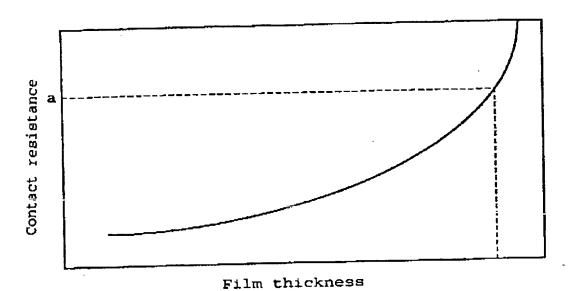


FIG. 17

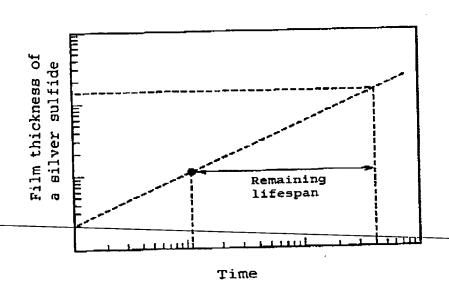


FIG. 18

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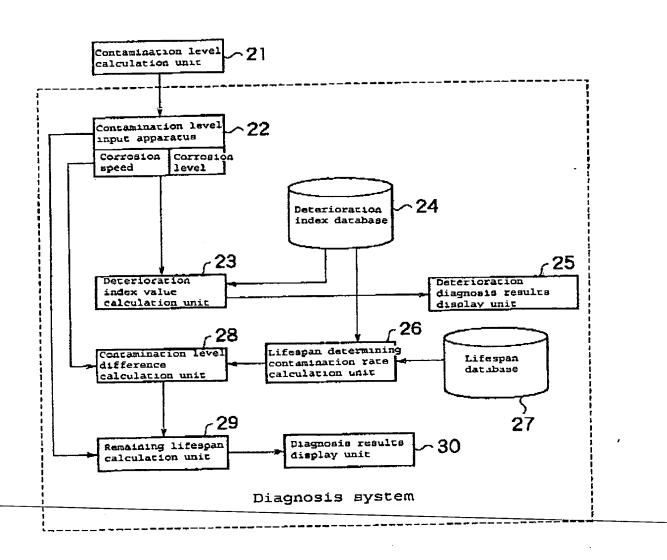


FIG. 19



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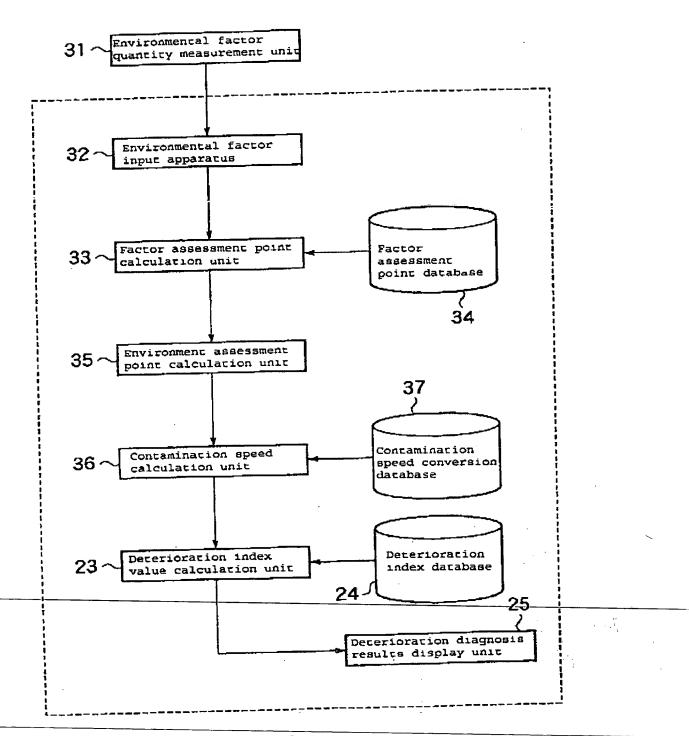
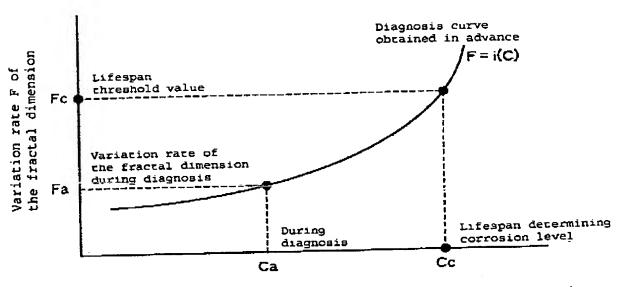


FIG. 20

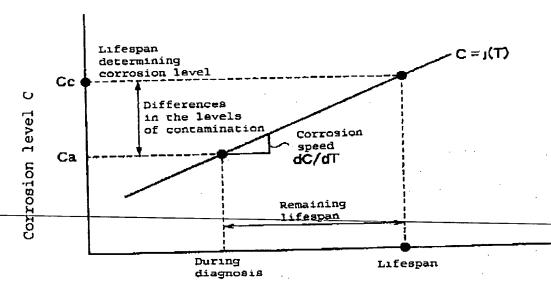
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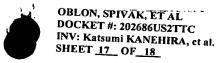
Corrosion level C

FIG. 21



Time of usage T

EIG. 22





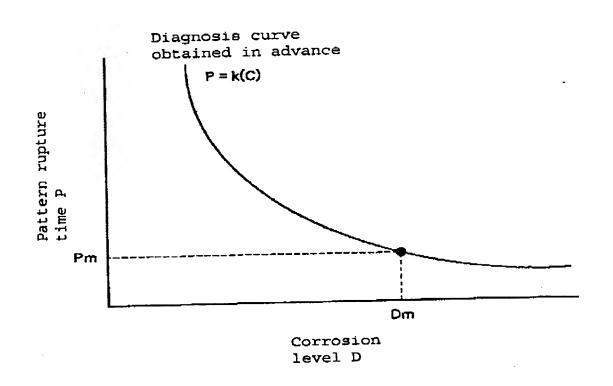


FIG. 23

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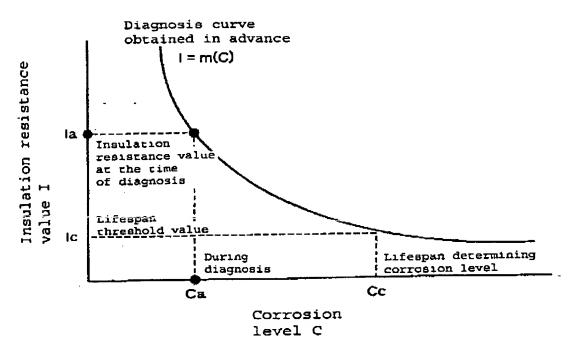
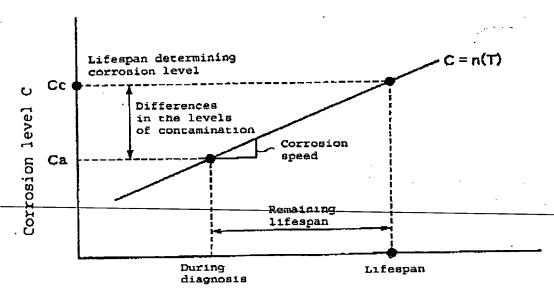


FIG. 24



Time of usage T

FIG. 25